

REMARKS

This is in response to the non-final Office Action mailed July 8, 2008.

Claims 1, 5-6, 28-37, 41-44, 46-53, 55, 57, 59-62 and 64-72 are pending in this application. Claims 1, 50-53, 57, 61-62 and 64 are amended. Support for these amendments can be found throughout the specification, for example page 7, lines 10-12; and Table 4, page 19, as modified in an amendment filed August 27, 2004, and page 9, lines 8-14. New claims 65-72 are added. Support for these new claims can be found throughout the specification, for example Table 4, page 19, as modified in an amendment filed August 27, 2004, and page 9, lines 8-14. Claim 63 has been cancelled. In view of the foregoing amendments and the following remarks, Applicants submit that the application is in condition for allowance.

Claim Objection

In the Office Action at page 3, claim 62 is objected to as being of improper dependent form for failing to further limit the subject matter of claim 61, from which it depends. The Office Action alleges that “[c]laim 61 claims that the amount of calcium administered is above about 400 mg per day. Claim 62 claim[s] increasing the dietary calcium to a level above 400 mg per day.” Applicants traverse.

However, solely to expedite prosecution, Applicants have amended claim 62 to recite “a level in the range of about 773 to about 1346 mg per day” of calcium. This should obviate the objection, and Applicants respectfully request that it be withdrawn.

Claim Rejection – 35 U.S.C. § 112, first paragraph

In the Office Action at page 4, claims 1, 5-6, 27-37, 41-44, 46-55, 57, and 59-64 are rejected under 35 U.S.C. § 112, first paragraph for allegedly failing to comply with the written description requirement. The Office Action alleges that the specification does not provide support for “at least about 773 mg [of calcium] per day” (claims 1 and 50 and claims dependent therefrom) or “at least about 1,346 [of calcium per day]” (claim 53) because “Applicant does not have support for ‘at least’ these amounts.” (Office Action, p. 4). Specifically, the Office Action alleges that Table 4, which

lists 255, 484, 773 and 1346 mg calcium per day, does not provide support for “at least” 773 and 1346 mg calcium per day. Applicants respectfully traverse.

However, solely to expedite prosecution, Applicants have amended claims 1 and 50 and 61 to recite calcium “in the range of about 745 mg to about 1459 mg” per day. Applicants submit that the specification provides support for these specific amounts, as well as the full range of values in between these amounts.

Applicants submit that Table 4 provides support for 745 and 1459 mg calcium. Table lists a range of variability for 773 and 1346, specifically 773 ± 28 and 1346 ± 113 . Accordingly, Table 4 provides support for the values 745 (i.e., 773 minus 28) and 1459 (i.e., 1346 plus 113). And the specification provides support for the full range of values in between these amounts, as acknowledged in the Office Action (see, e.g., pages 4 and 5).

The Office Action also alleges that “about 1000 [as recited in claims 64 and 67] is not close to supported values of 773[.]” However, the value of 1000 mg calcium is supported at, e.g., p. 2, line 29-p. 3, line 2 of the specification as filed. Furthermore, as set forth above, Table 4 provides support for the full range of values in between those listed, which encompasses 1000 mg calcium.

In view of the foregoing, Table 4 provides support for the range of about 745 mg to about 1459 mg calcium per day. Furthermore, Table 4 also provides support for calcium in the range of about 773 to about 1346 mg per day, as recited in new claim 65, as well as about 773, about 1000 and about 1346 mg calcium per day, as recited in claims 52, 53, 64 and new claims 66-68.

The Office Action also alleges that the specification does not provide support for “at least about 57 or at least about 102 servings of calcium per month[.]” (Office Action, p. 5), as recited in claims 1, 50, 57 and 61. Applicants respectfully traverse.

However, solely to expedite prosecution, Applicants have amended claims 1, 50 and 61 to recite “in the range of about 56 to about 106 servings of dairy per month[.]” As set forth for the calcium intake values above, the specification provides support both for these specific values as well as for the full range in between these values. For example, Table 4, as amended in Applicants’ submission dated August 27, 2005 recites 102.8 ± 3.6 for the fourth quartile of servings of dairy consumed per month. Table 4 also lists a range of variability for 57 servings of dairy, specifically 57.2 ± 1.0 . Thus, Table 4 provides support for about 56 (i.e., 57.2 minus 1) and about 106 (i.e.,

102.8 plus 3.6). And as noted above, Table 4 provides support for the full range of values in between those specifically listed (see, e.g., Office Action at page 5).

In view of the foregoing, Table 4 provides support for the full range of about 56 to about 106 servings of dairy per month, as recited in claims 1, 50 and 61. Accordingly, Table 4 also provides support for the range of about 57 to about 102 servings of dairy per month, as recited in new claim 69, and for about 57 and about 102 servings of dairy per month, as recited in claims 57 and 64, as well as new claims 70-71.

Accordingly, claims 1, 5-6, 27-37, 41-44, 46-55, 57, and 59-71 all comply with the written description requirement. Applicants respectfully request that this rejection be withdrawn.

Claim Rejections – 35 U.S.C. § 112, second paragraph

“A method comprising”

In the Office Action at page 5, claims 1, 5-6, 27-37, 41-44, 46-55, 57 and 59-64 are rejected under 35 U.S.C. § 112, second paragraph as allegedly being indefinite. The Office Action alleges that “a method comprising,” as recited in claims 1, 50 and 61, is indefinite because “[i]t is unclear what this method is actually for.” Applicants respectfully traverse.

However, solely to expedite prosecution, applicants have amended claims 1, 50 and 61 to recite “[a] method of inducing weight loss[.]” This should obviate the rejection, and Applicants respectfully request that it be withdrawn.

“At least about,” “above about”

In the Office Action at page 6, claims 1, 50, 52-53, 57, 61-63 and 64 are rejected under 35 U.S.C. § 112, second paragraph as allegedly being indefinite. The Office Action alleges that “‘at least about’ and ‘above about’ are vague and indefinite because it is unclear what constitutes the lower limit for the particular amount being claimed.” Applicants respectfully traverse.

However, solely to expedite prosecution, Applicants have amended claims 1, 50, 52-53, 57, 61 and 64 to remove recitations of “at least about” or “above about.” This should obviate the rejection in the Office Action, and Applicants respectfully request that it be withdrawn.

“Below ad lib”

In the Office Action at page 6, claims 1 and 61 are rejected under 35 U.S.C. § 112, second paragraph as allegedly being indefinite. The Office Action alleges that “claims 1 and 61 specifically restrict the amount of caloric intake to be about 200 to 2500” and that “[t]herefore, it is unclear how this is ‘ad lib’ as applicants have indicated that ‘ad lib’ means unrestricted.” Applicants traverse.

Claims 1, 50 and 61 have been amended so that element (b) recites “reducing the caloric intake of said obese individual below ad lib to a range of about 200 to about 2500 kcal per day[.]” This should obviate the rejection in the Office Action.

Also, claims 1, 50 and 61 recite “below ad lib,” not merely “ad lib.” “Ad lib” means “unrestricted,” as in an “unrestricted caloric intake,” and “below ad lib” means a restricted caloric intake. The numerical range of “about 200 to about 2500” specifies the range within which this reduced caloric intake must fall in the claimed method. Thus, a caloric intake that is below ad lib but exceeds 2500 calories (e.g., a person who normally consumes 3000 calories but whose below ad-lib consumption is 2700 calories) would not fall within the claimed method. Similarly, a caloric intake that is between 200 and 2500 but is not below ad lib (e.g., a person who normally consumes 2000 calories) would also not fall within the claimed method. In other words, the individual’s caloric intake must be both “below ad lib” and “in a range of about 200 to about 2500 calories.”

Accordingly, claims 1 and 61 are not indefinite. Applicants respectfully request that this rejection be withdrawn.

Claim Rejection – 35 U.S.C. § 103(a)

In the Office Action at page 8, claims 1, 5-6, 27-30, 32, 41-44, 46-55, 57 and 59-64 are rejected under 35 U.S.C. § 103(a) as being unpatentable over “Study: Calcium May Curb Weight Gain in Young Women,” published at ScienceDaily.com (hereinafter “Science Daily”), in view of Summerbell et al. (BMJ 317 1998 p. 1478-89). Applicants respectfully traverse because none of the cited or applied references, either alone or in combination, disclose, teach or suggest the methods of the cited claims.

Independent claim 1 is directed to a method of inducing weight loss comprising, in combination, during a period of time, administering one or more servings of one or more calcium-containing products comprising a therapeutically effective amount of calcium in the range of about 745 mg to about 1459 mg per day to an obese individual suffering from at least Grade I obesity, and thereby inducing a metabolic change in said individual, and reducing the caloric intake of said obese individual below ad lib to a range of about 200 to about 2500 kcal per day, wherein the individual loses weight during the period of time, and wherein the individual is a woman and the one or more servings is in the range of about 56 to about 106 servings of dairy per month. Independent claims 50 and 61 are similar in aspects relevant here.

Science Daily does not teach or suggest the methods recited in independent claims 1, 50 and 61. For example, the study discussed in Science Daily focused solely on women of normal weight (see paragraph 6). Science Daily does not disclose, teach or suggest that calcium has any effect in obese individuals, as recited in claims 1, 50 and 61. In light of the differences in endocrine activity between obese individuals and those of normal weight, and the general recognition among those of ordinary skill in the art that it is inappropriate to expect results obtained with subjects of normal weight to apply to obese subjects, Science Daily does not disclose or suggest a method of inducing weight loss in an individual suffering from obesity, as recited in the present claims.

Moreover, in the study discussed in Science Daily, the subjects did not reduce their caloric intakes. The reference states that “[t]he women in the study . . . followed no specific diet . . .” (paragraph 6), indicating that the subjects’ caloric intake was ad lib. Nowhere does the reference disclose, teach or suggest reducing caloric intake to below ad lib, as recited in claim 1, 50 and 61. Furthermore, Science Daily does not disclose or suggest reducing caloric intake below ad lib to a range of about 2000 to about 2500 kcal per day, as recited in new claim 72. In fact, Science Daily explicitly states that “women who consumed more than 1,900 calories per day did not benefit,” and that “for women with calorie intakes of more than 1,900, we found that calories take over, and any potential benefits of weight-control from calcium are lost.”

Furthermore, the study reported in Science Daily could not demonstrate that calcium, and not another component of milk, caused the observed weight benefits. Science Daily states that “women who got their calcium from dairy sources, such as milk, yogurt and cheese, showed more

benefits of the weight control measures than did those who primarily used non-dairy sources . . . or calcium supplements.” (Paragraph 12.) In fact, the study reported in Science Daily found that non-dairy calcium had no effect on body weight, which undermines the conclusion that calcium was the causative agent. See Lin et al., "Dairy Calcium is Related to Changes in Body Composition During a Two-year Exercise Intervention in Young Women", Journal of the American College of Nutrition, 2000, 19(6), 754-760, p. 758 (hereinafter the “Lin Study”) (submitted in Information Disclosure Statement on February 14, 2008). Furthermore, because of shortcomings in their study design, the authors were unable to exclude the possibility that the observed weight changes were caused by an ingredient in milk other than calcium. In fact, the authors were forced to conclude that “another component of dairy products which was not analyzed in this study[,]” and not calcium, “could be the factor which influences body weight.” *Id.* (emphasis added). The authors also state that “[a]nother possibility is that, if total dietary calcium increases, another nutrient decreases,” in which case the other nutrient, and not calcium, would be the causative agent. *Id.* These shortcomings may have resulted from the fact that the study was initially intended to evaluate the effects of calcium intake on bone density, not weight. Lin, p. 755. In short, the authors had no basis for the assertion in Science Daily that calcium may curb weight gain in young women. Indeed, the Lin Study results more strongly support the conclusion that calcium was not the causative agent.

In addition, the authors expected to find that increased calcium intake stimulated greater lipolysis among the subjects who exercise than among those who did not, but they found no evidence of increased lipolysis among the exercisers. Lin, p. 758. In light of the acknowledged weaknesses in the calcium / weight loss association noted above, this data casts further doubt on the authors’ conclusion that calcium caused the observed weight changes, a point the authors failed to note. Thus, in ways both acknowledged and overlooked by the study authors, their evidence for the apparent relationship between calcium and weight loss is shown to be speculative.

Furthermore, the authors’ attempt to elucidate a mechanistic rationale for their suggested association between calcium intake and weight changes further demonstrates the lack of support for their conclusions. In the Lin Study, the authors discuss several calcium intervention studies that explore the role of calcium in adipocyte lipid metabolism to support their hypothesized mechanism for the calcium-weight change association. However, the authors are forced to acknowledge that

“[u]nfortunately, the published results of calcium intervention trials in this age group . . . cannot be compared to the results of the current study” because, among other reasons, “changes in weight and body fat may be specific to dairy products, not calcium supplementation alone[.]” Lin, p. 759.

The Lin Study data also suggested several other associations that depart from prior research and conventional wisdom to such an extent that they call into question the validity of the study as a whole. For example, the study found a positive correlation between vitamin A intake and changes in body weight, which the authors characterize as “perplexing” and inconsistent with other research in the area. Lin, p. 759. In addition, the study also noted a correlation between increased cholesterol intake and weight loss. They offer no explanation for this extremely counterintuitive result, other than to note that the result is “perplexing” and that “further investigation is warranted.”

In summary, a careful analysis of the published study based on the same data that formed the basis for the Science Daily article compels the following conclusions: 1) the authors focus on an alleged association between increased calcium intake and weight changes, but the data supporting the association is speculative at best and some of the data actually refutes their conclusion; 2) the authors themselves acknowledge that they failed to exclude the possibility that a nutrient other than calcium was the causative agent, to the point that they acknowledge they do not have a basis for comparing their study to calcium intervention studies; 3) their data supported other, more “perplexing” associations between nutrients and weight loss that depart from previous research and conventional wisdom to such an extent that they call into question the validity of the study as a whole. Thus, Science Daily does not teach a person of ordinary skill that calcium may curb weight gain in young women. Accordingly, Science Daily does not disclose or suggest the claimed methods.

Indeed, far from being obvious over the study discussed in Science Daily, the discoveries that gave rise to the claims at issue constitute unexpected results. The scientific literature is filled with associative data indicating that many nutrients are directly or inversely associated with obesity. Persons skilled in this field (a) do not infer causality from associative studies, and (b) would always look for an alternative explanation unless a plausible mechanism was presented to accompany the associative study. Indeed, a person of skill in the art, after evaluating the conclusions in the Science Daily study as well as the asserted bases for those conclusions, would likely decide that the

conclusions are off-base, and would instead pursue other possible explanations for the observed weight loss.

In view of the foregoing, Science Daily does not disclose or suggest a method of inducing weight loss comprising administering calcium-containing products and reducing caloric intake to below ad lib in an obese individual, as recited in the present claims.

Summerbell does not cure the above-noted defects in Science Daily because, as the Office Action appears to acknowledge (see page 8), Summerbell also fails to disclose, teach or suggest weight-related benefits attributable to calcium. Summerbell tests diets with high compliance and hence good for weight loss (Introduction). The study in Summerbell was designed to test the hypothesis that prescription of a simple and novel diet would result in higher levels of compliance and weight loss. In fact, Summerbell explains the higher weight loss for the milk group's diet as resulting from the fact that the milk-only diet is "simple but much less boring and patients were more likely to comply with it" than the conventional diet. Indeed, Summerbell is "not advocating milk only as a general long term reducing diet for obese outpatients, because in the long term it will cease to be novel and compliance will fall." Summerbell concludes that "[p]robably the best strategy is to rotate diets..." These statements would lead one away from the teaching of the present invention, which involves administering one or more calcium-containing products, e.g., monthly. The point to take from Summerbell is that one could use any type of food regimen or diet so long as it is simple and less boring to ensure compliance. Nowhere in Summerbell is it disclosed that reducing calories to below ad lib and administering dietary calcium in the range of about 645 mg to about 1459 mg per day induces weight loss, as recited in the present claims.

In view of the above, independent claims 1, 50 and 61 are all patentable over any reasonable combination of Science Daily and Summerbell. Dependent claims 5-6, 28-37, 41-44, 46-49, 51-53, 55, 57, 59-60, 62 and 64-71 are all allowable as being dependent on an allowable claim. Accordingly, Applicants respectfully request that this rejection be withdrawn.

Double Patenting Non-statutory Rejection

In the Office Action at p. 15, claims 1, 5-6, 27-37, 41-44, 46-55, 57 and 59-64 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being

unpatentable over claims 1-7 and 10-15 of copending U.S. Appl. No. 10/827,296 ("the '296 application").

This application and the '296 application both have an effective filing date of Sept. 1, 2000. According to MPEP section 804(I)(B)(1), because this application and the '296 application were filed on the same day, the Examiner will need to determine which application claims the base invention and which application claims the improvement (added limitations).

If the Examiner determines that this application is the base application, then a terminal disclaimer is unnecessary. If the Examiner determines that the '296 application is the base application and allows claims in this application, Applicants would then consider filing a terminal disclaimer in compliance with 37 CFR 1.321(c) in this application, to overcome the rejection.

Double Patenting Non-statutory Rejection

In the Office Action at p. 15, claims 1, 5-6, 27-37, 41-44, 46-55, 57 and 59-64 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-7 and 10-15 of copending U.S. Appl. No. 10/827,307 ("the '307 application").

This application and the '307 application both have an effective filing date of Sept. 1, 2000. According to MPEP section 804(I)(B)(1), because this application and the '307 application were filed on the same day, the Examiner will need to determine which application claims the base invention and which application claims the improvement (added limitations).

If the Examiner determines that this application is the base application, then a terminal disclaimer is unnecessary. If the Examiner determines that the '307 application is the base application and allows claims in this application, Applicants would then consider filing a terminal disclaimer in compliance with 37 CFR 1.321(c) in this application, to overcome the rejection.

Conclusion

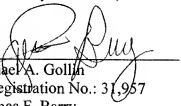
All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. Accordingly, Applicants request that the Examiner issue a Notice of Allowance indicating the allowability of claims 1, 5-6, 28-37, 41-44, 46-53, 55, 57, 59-62 and 64-72 and that the application be passed to issue. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is hereby invited to telephone the undersigned at the number provided.

The Commissioner is hereby authorized to charge any additional fees which may be required for this Amendment, or credit any overpayment to deposit account no. 22-0261.

In view of the above amendment, applicant believes the pending application is in condition for allowance.

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Respectfully submitted,

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